

北美外来植物中原产东亚类群的学名考证

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摘要: 作者在整理北美外来入侵植物中发现一些起源(或主要分布)于东亚植物的学名, 在北美乃至欧洲使用非常混乱。本文特将有关重要类群整理出来, 包括异名、原产地、北美的分布以及必要的讨论等。

关键词: 外来植物; 北美; 原产地; 东亚; 分类群; 修订

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Nomenclatural Notes on Alien Vascular Plants in North America Originated from East Asia

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Abstract: The scientific names of twenty-three alien vascular plants in North America, originating from East Asia, are reviewed here, since their uses in North America are different from those in East Asia. Most are taken from the invasive plants literatures in North America as well as in Europe, but a few are also from native floras in East Asia. The synonyms for each accepted species, along with their distributions both in North America and in East Asia, with discussion if necessary, are also provided.

Key words: Invasive Plants; North America; Native to East Asia; Taxonomic Notes

1. *Alhagi maurorum* Medik. in Vorles. Churpfalz. Phys.-Oecon. Ges. 2: 397, 1781. Syn. *A. pseudalhagi* (M. Bieb.) Desv. in J. Bot. Agric. 1: 120, 1813. *A. graecorum* Boiss., Diagn. Pl. Or. Nov. 2 (9): 114, 1849 (Fabaceae).

Camel-thorn is a native species found in northwest China (north Gansu, west Nei Menggu, west Qinghai, Xinjiang), northern India, and central and west Asia as well as North Africa, naturalized in many parts of world, including southern Africa, Australia and USA: AZ, CA, CO, ID, NM, NV, TX, UT, WA.

Yakovlev (1979) suggested that the five species of *Alhagi* in 'Flora of USSR' should be treated as one species, and Awmack & Lock (2002) treated

all species of *Alhagi* as *A. maurorum*, with synonyms including *A. sparsifolia* of central Asia and China (Xu, 1998), *A. pseudalhagi* (Ball, 1968; Bossard *et al.*, 2000) and *A. graecorum* of Europe (Ball, 1968).

2. *Ampelopsis heterophylla* (Thunb.) Sieb. & Zucc. in Abh. Math.-Phys. Cl. Konigl. Bayer. Akad. Wiss. 4 (2): 197, 1845. Syn. *Vitis heterophylla* Thunb. in Murray, Syst. Veg. ed. 14: 244, 1784, & Fl. Jap. 103, 1784 (Vitaceae).

Porcelain Berry, a native species from far east Russia, northern Japan, Korea and eastern China, to Himalayas, Indochina and the Philippines, and has been cultivated since the 1870s in

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This is an extremely variable species, and many varieties and forms have been described both from the native area and from under cultivation (see below for detail). Moreover, there is still no consensus on nomenclature even in the native area; the Japanese treated it as *A. glandulosa* (Momiyama, 1977; Ohba, 1999), the Chinese treated it as *A. heterophylla* (Li, 1996; 1999), but the same taxon was recorded as *A. brevipedunculata* in North America (Antenen, 1996) and Europe (Richardson, 1997). Here, a broad concept is adopted, without further division, and the most common synonyms of this species includes at least the following:

A. glandulosa (Wall.) Momiy. in Fl. E. Himalaya **2**: 78, 1971, & var. *glabrifolia* (Honda) Momiy. in J. Jap. Bot. **52**: 30, 1977; *A. brevipedunculata* (Maxim.) Trautv. in Trudy Imp. St. Peterb. Bot. Sada **8**: 178, 1883, & var. *hancei* (Planch.) Rehder in J. Arn. Arb. **2**: 177, 1921, & var. *glabrifolia* Honda in Bot. Mag. Tokyo **45**: 423, 1931; *A. heterophylla* (Thunb.) Sieb. & Zucc. var. *brevipedunculata* (Regel) C. L. Li in Chin. J. Appl. Environ. Biol. **2** (1): 47, 1996, & var. *hancei* Planch. in DC. Monogr. Phan. **5**: 457, 1887, & var. *glabrifolia* (Honda) Nemoto, Fl. Jap. Suppl.: 463, 1936, & var. *kulingensis* (Rehd.) C. L. Li in Chin. J. Appl. Environ. Biol. **2** (1): 47, 1996, & f. *elegans* (K. Koch) Voss, Vilm. Blumeng. ed. 3, **1**: 183, 1894, & var. *citruloides* (Lebas) Rehder in L. H. Bailey, Stand. Cycl. Hort. **1**: 278, 1914; *A. humulifolia* Bunge var. *heterophylla* (Thunb.) Koch, Hort. Dendr. **48**, 1853; *A. brevipedunculata* (Maxim.) Trautv. in Trudy Imp. St. Peterb. Bot. Sada **8**: 178, 1883, & var. *maximowiczii* (Regel) Rehder in L. H. Bailey, Gentes Herb. **1**: 36, 1920, & var. *citruloides* (Lebas) Rehder in L. H.

Bailey, Gentes Herb. **4**: 135, 1923, & var. *kulingensis* Rehder in L. H. Bailey, Gentes Herb. **1**: 36, 1920, & f. *citruloides* (Lebas) Rehder in J. Arn. Arb. **2**: 176, 1921, & f. *elegans* (K. Koch) Rehder in J. Arn. Arb. **2**: 176, 1921, & var. *citruloides* (Lebas) Rehder in J. Arn. Arb. **4**: 135, 1923, & var. *elegans* (K. Koch) L. H. Bailey in Gentes Herb. **4**: 135, 1923, & var. *heterophylla* (Thunb.) Hara, Enum. Sperm. Jap. **3**: 133, 1954; *A. regeliana* Carr. in Rev. Hort. **440**, 1866; *Cissus brevipedunculata* Maxim., Prim. Fl. Amur. **68**—**69**, 1859. *Vitis glandulosa* Wall., Fl. Ind. **2**: 479, 1824; *V. heterophylla* Thunb. var. *maximowiczii* Regel in Trudy Imp. St. - Peterb. Bot. Sada **2**: 392, 1873, & var. *elegans* Regel in Gartenfl. **22**: 197, 1873, & var. *vestita* Rehd. in Mitt. Deutsch. Dendr. Ges. **21**: 189, 1912; *V. humulifolia* Bunge f. *glabra* Debeaux in Acta Linn. Soc. Bordeaux **31**: 132, 1876.

3. *Aralia elata* (Miq.) Seem in J. Bot. **6**: 134, 1868. Syn. *Dimorphanthus elatus* Miq., Comm. Phytogr. **95**, t. 12, 1840; *A. spinosa* var. *elata* (Miq.) Sarg., Silva **5**: 60, 1903.

Japanese Angelica-Tree, native to northeast, south and southwest China, Japan, Korea and far east Russia (Wen, 2000), has been widely cultivated in North America since the 1830s, but naturalized and escaped from the Middle Atlantic region to New England in the 1900s. However, it was misidentified as *A. spinosa* (Lamont and Fitzgerald, 2001; Zebryk, 2003; Sorrie, 2005), a native species of North America from the Middle Atlantic to the southern and southeastern USA, with a long main axis of inflorescence at the top of the stem. This species, however, has no main axis of inflorescence at all, with fruit and seed smaller than that of *A. spinosa* (Moore *et al.* in print). Naturalized in USA: MA, NH, NJ, NY, PA; and Canada: ON.

4. *Chenopodium album* L., Sp. Pl. 1: 219. 1753 (Chenopodiaceae)

White Goosefoot, native to Eurasia and/or introduced into North America is still uncertain in origin (Zhu, 1979; Clemants and Mosyakin, 2003), but is certainly known as a worldwide weed. This is one of the worst weeds and most widespread plants in the world. Hundreds of segregate microspecies and infraspecific entities of the *C. album* aggregate have been described and/or recognized by various authors. Some authors have recognized numerous segregate intergrading species, while others have developed elaborate infraspecific hierarchies with numerous subspecies, varieties, forms, and even numerous subforms, or have combined both approaches. Unfortunately, neither approach has brought satisfactory and uncontroversial results (Clemants and Mosyakin, 2003). Widespread in USA: AK, AL, AR, AZ, CA, CO, CT, DC, DE, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; and Canada: AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT.

5. *Dioscorea polystachya* Turz. in Bull. Soc. Imp. Nat. Mosc. 10 (7): 158, 1837; Raz in Fl. N. Amer. 26: 483, 2002. Syn. *D. batatas* DC. Rev. Hort. 3: 243, 1854 (Dioscoreaceae).

The Chinese yam originates from eastern China (northeast to southwest), cultivated as edible tubers, and was introduced into USA as an ornamental vine. In 1970s, it had not yet been documented as escaping from cultivation. By 1986, however, it was reported to have become naturalized and was observed in areas outside of cultivation in USA: AL, AR, CT, DC, GA, IL, IN, KS, KY, LA, MD, MO, MS, NC, NJ, NY, OH, OK, PA, SC, TN, VA,

VT, WV.

This species has been frequently misidentified as *D. batatas* in various references in Europe (King, 1986) and North America (Zheng *et al.*, 2004) and *D. oppositifolia* L. (Mueller *et al.*, 2003). The name of *D. opposita* Thunb. (Fl. Jap. 151, 1784) has also been used in the sense of *D. polystachya*, which is an earlier name for *D. batatas*. It was based on a misidentification of Japanese material as the strictly Indian species *D. oppositifolia* L., which was cited as a synonym in the protologue, thus rendering *D. opposita* nomenclaturally superfluous as well as an illegitimate name (Ting and Gilbert, 2000).

6. *Elymus repens* (L.) Gould in Madroño 9 (4): 127. 1947. Syn. *Elytrigia repens* (Linn.) Nevsk. in Act. Inst. Bot. Acad. Sci. URSS 1 (1): 14, 1933; *Agropyron repens* (L.) P. Beauv. Ess. Agrostogr. 102, 146, 180, t. 20, f. 2. 1812; *Triticum repens* L., Sp. Pl. 1: 86, 1753 (Poaceae).

Creeping Wild Rye is native to Eurasia (temperate Europe and central Asia, northwest China), but can also be found in many parts of South America, Australia, New Zealand and Indonesia; it is also widely distributed across North America, especially invasive in grass prairie zones and/or wetlands of western North America. USA: AK, AR, AZ, CA, CO, CT, DC, DE, IA, ID, IL, IN, KS, MA, MD, ME, MI, MN, MO, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; Canada: AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT.

This species is widely accepted as *Elymus repens* in Europe (Melderis, 1980) and much of the world (Mabberley, 1992; Plant Book, p. 203), but the former Russian name is still followed by the Chinese as *Elytrigia* in China (Kuo and Tsui, 1987).

7. *Fallopia aubertii* (Henry) Holub in Folia Geobot. Phytotax. **6**: 176, 1971; A. J. Li in Fl. Reipubl. Popularis Sin. **25** (1): 102, 1998 & A. R. Li, A. E. Grabovskaya-Borodina, S. P. Hong, J. McNeill, H. Ohba, & C. W. Park in Fl. Chin. **5**: 317, 2003. Syn. *Polygonum aubertii* Henry in Rev. Hort. 1907: 82, f. 23 & 24, 1907 (Polygonaceae).

China Fleece Vine is a native species from north to southwest China (Gansu, Guizhou, Henan, Hubei, Nei Menggu, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Yunnan, and Xizang). Some authors put this species under *Polygonum* (Akeroyd, 1989; Sorrie, 2005), and some even consider it to be the same as *Fallopia baldschuanica* (Regel) Holub (Bailey and Stace, 1992), based on *P. baldschuanicum* Regel (Trudy Imp. St. Peterb. Bot. Sada **8**: 684, 1883) in USA: CO, MA, MI, NY, PA, UT, VA, WA

8. *Firmiana simplex* (L.) W. Wight in USDA Bur. Pl. Industr. Bull. **142**: 67, 1909. Syn. *F. platanifolia* (Linn. f.) Marsili in Sagg. Sci. Lett. Acc. Padova **1**: 106–116, 1786; *Sterculia platanifolia* L. f., Suppl. Pl. 423, 1781, *Culhamia simplex* (L.) Nakai in Bull. Nat. Sci. Mus. Tokyo **31**: 76, 1952; *Hibiscus simplex* L., Sp. Pl. ed. **2**: 977, 1763 (Sterculiaceae).

Chinese Parasol Tree, native to China (from north to south, also cultivated widely) and Japan, is treated as *F. platanifolia* in China (Hsue, 1984). USA: AL, AR, FL, GA, LA, MD, MS, NC, SC, TN, TX, VA.

9. *Frangula alnus* Miller, Gard. Dict. (ed. 8), No. 1, 1768; Syn. *Rhamnus frangula* L., Sp. Pl. **1**: 193, 1753. (Rhamnaceae).

Glossy buckthorn, native to Europe, Asia and North Africa, is commonly accepted as *Frangula alnus* Miller in Europe (McKean, 1997; Tutin, 1968). However, it was treated

as *Rhamnus frangula* L. in China (distributed in Xinjiang only, Chen, 1982) and in North America (McClain, 1996; Krock and Williams, 2002, Frappier and Eckert, 2003; Sorrie, 2005). It was introduced to North America prior to the 1900s for horticultural purposes, and is widespread in USA: CO, CT, IA, IL, IN, KY, MA, MD, ME, MI, MN, NH, NJ, NY, OH, PA, RI, TN, VA, VT, WI, WV, WY; and Canada: MB, NB, NS, ON, PE, QC.

10. *Humulus scandens* (Lour.) Merr. in Trans. Amer. Philip. Soc. n. ser. **24**, **2**: 138, 1935; S. S. Chang in Fl. Reip. Pop. Sin. **23** (1): 220–221, 1998; Z. Y. Wu, Z. K. Zhou & B. Bartholomew in Fl. Chin. **5**: 75, 2003. Syn. *Antidesma scandens* Lour. Fl. Cochinch. **2**: 157, 1790 (Cannabaceae).

Japanese Hop has probably arrived in North America due to intentional cultivation at the end of the nineteenth century. Native to China (national wide except Qinghai and Xinjiang), Japan, Korea and Vietnam, it is also naturalized in Europe, but frequently used as *Humulus japonicus* Sieb. & Zucc. both in Europe (Nelson, 1989) and in North America (Small, 1978; Sorrie, 2005). Widespread in USA: CT, DC, DE, GA, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, NC, NE, NH, NJ, NY, OH, PA, RI, SC, TN, VA, VT, WI, WV; and Canada: ON, QC.

11. *Kochia scoparia* (L.) Schrader in Neues J. Bot. **3**: 85, 1809; G. L. Zhu in Fl. Reip. Pop. Sin. **25** (2): 102, 1979, G. L. Zhu, S. L. Mosyakin & S. E. Clemants in Fl. Chin. **5**: 385, 2003. Syn. *Bassia scoparia* (L.) A. J. Scott, in Fed. Rep. **81** (2–3): 108, 1978; *Chenopodium scoparium* L., Sp. Pl. **1**: 221, 1753 (Chenopodiaceae).

Mexican Summer Cypress from Eurasia and Africa, cultivated throughout China, widely

naturalized in Australia, and North and South America, is an extremely variable species, and several forms, varieties, and subspecies have been described (Mosyakin, 2003). The nomenclature is also extremely confusing since it has been classified either as *Bassia* (Ball and Akeroyd, 1993) or *Chenopodium* in history. Widely spread in USA: AZ, CA, CO, CT, DE, IA, ID, IL, IN, KS, KY, MA, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; and Canada: AB, BC, MB, NB, NS, ON, QC, SK.

12. *Landoltia punctata* (G. Mey.) Les & D. J. Crawford, Novon **9**: 532. 1999. Syn. *Spirodela punctata* (G. Mey.) C. H. Thompson in Ann. Rep. Miss. Bot. Gard. **9**: 28, 1898; *Lemna punctata* G. Meyer in Prim. Fl. Esseq. 262, 1818; *Spirodela oligorrhiza* (Kurz) Hegelm. (Lemnaceae).

Dotted Water-flaxseed, native to warm-temperate to subtropical regions with mild winters in China (Fujian, Henan, Hubei, Sichuan, Taiwan, Xizang, Yunnan, and Zhejiang), India, Indonesia, Japan, Malaysia, the Philippines, Thailand, Vietnam, and also found in Africa, Australia, North America, the Pacific Islands, and South America. It has been more often treated in *Lemna* (Crow and Hellquist, 2000) in North America or *Spirodela* (Lawatree, 1980) in Europe. Wide spread in USA: AL, AR, AZ, CA, DC, DE, FL, GA, IL, KY, LA, MA, MO, MS, NC, OK, OR, PA, SC, TN, TX, VA.

13. *Lespedeza thunbergii* (DC.) Nakai in Bull. For. Exp. Sta. Chosen. **6**: 1–101, 1927. Syn. *L. formosa* (Vog.) Koehne, Deuts. Dendrol. 343, 1893; *Desmodium formosum* Vog. In Nov. Act. Acad. Leop.-Carol. 19, suppl. 29, 1842; *D. thunbergii* DC. Prodr. **2**: 337, 1825

(Fabaceae).

Thunberg's Bushclover, from eastern Asia (from Japan to India), has been treated as *L. formosa* in China (Li and Chen, 1995), and is widespread in USA: AR, CT, FL, GA, IL, IN, KY, LA, MA, MD, MI, MO, NC, NJ, NY, PA, SC, VA; and Canada: ON.

14. *Lithospermum arvense* L. Sp. Pl. 132, 1753; Syn: *Buglossoides arvensis* (L.) Johnston in J. Arn. Arb. **35**: 42, 1954 (Boraginaceae).

Corn Gromwell, a native of Eurasia, is treated as *Lithospermum* in China (Wang, 1990; Zhu *et al.*, 1995), but as *Buglossoides* in Europe (Fernandes, 1972) and in North America (Sorrie, 2005). Wide spread in USA: AL, AR, CA, CO, CT, DC, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; and Canada: BC, MB, NS, ON, QC.

15. *Lonicera standishii* Jacques in J. Soc. Nat. Hort. Paris **5**: 514, 1859. Syn. *Lonicera standishii* Carr. in Fl. Ser. Jard. l' Eur. **13**: 63. 1860 (Caprifoliaceae).

Standish's Honeysuckle, from Eurasia, was introduced in around the 1800s, as ornamental and wildlife plants, and is often recorded as *L. standishii* 'Carr.', later a synonym in USA: IL, KY, MD, NY, PA, VA.

16. *Lygodium scandens* (L.) Sw. in Schrad. Journ. 106, 1801; R. C. Ching in Fl. Reip. Pop. Sin. **2**: 109, 1959. Syn. *L. microphyllum* (Cav.) R. Br. Prod. Fl. N. Holl. 162, 1810; *Ugena microphylla* Cav. Icon. Descrip. Pl. **6**: 76, pl. 595, f. 2, 1801; *Ophioglossum scandens* L. Sp. Pl. **2**: 1063, 1753 (Lygodiaceae).

The Old World climbing fern, native to Old

World tropics and subtropics, from south and southwest China to tropical Asia, is treated as *L. microphyllum* in North America (Zheng *et al.*, 2005). It was recognized as a potential problem not long after naturalization in USA: FL.

17. *Nephrolepis hirsutula* (Forst) Presl, Tent. Pterid. 79, 1836. Syn. *Davallia multiflora* Roxb. in Calcutta J. Nat. Hist. & Misc. Arts & Sci. India **4**: 515, pl. 31, 1844; *Polypodium hirsutulum* Forst., Prodr. 81, 1786; *N. multiflora* (Roxb.) Jarret & Morton in Contr. US Nat. Herb. **38**: 309, 1974 (Dryopteridaceae or Nephrolepidaceae).

The Asian Sword fern has been treated in Flora Reipublicae Populus Sinicae twice in different families, Dryopteridaceae (Ching, 1959) and Nephrolepidaceae (Wu, 1999), and was also frequently recorded as a member of *Polypodium* in North America. Native to tropical Africa and tropical Asia (China: Taiwan, Fujian, Guangdong, Guangxi, Hainan, and Yunnan and south Japan), it is cultivated in Europe (Page and Bennell, 1986), naturalized in Florida and Hawaii of the United States, the Caribbean, tropical South America, and the Mascarenes.

18. *Polygonum posumbu* Buch. -Ham. ex D. Don, Drodr. Fl. Nep. 71, Feb. 1825; A. J. Li in Fl. Reip. Pop. Sin. **25** (1): 29–30, 1998. Syn. *Persicaria posumbu* (Buch. -Ham. ex D. Don) H. Gross in Bot. Jahrb. Syst. **49** (2): 313, 1913; *P. caespitosum* Blume Bijdr. 532, Dec. 1825 (Polygonaceae).

The Asiatic Water Pepper has been treated either as *Persicaria posumbu* (Buch. -Ham. ex D. Don) H. Gross in North America (Costea *et al.*, 2005), or as *P. caespitosum* Blume by many others. It is native to China, India, Indonesia, Japan, Korea, Myanmar, Nepal, the Philippines, Thailand, and was introduced around 1910 from Philadelphia into North America,

USA: AL, CT, DC, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, NC, NE, NJ, NM, NY, OH, PA, SC, TN, TX, VA, VT, WI, WV; and Canada: BC, NB, ON, QC, SK.

19. *Pueraria montana* (Lour.) Merr. in Trans. Amer. Philos. Soc., n. s. **24** (2): 210, 1935. Syn. *Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Maesen & S. Almeida in J. Bombay Nat. Hist. Soc. **85** (1): 234, 1988 (Fabaceae).

The Kudzu has a very complex nomenclature: it was first widely used as *P. thunbergiana* (Piper, 1920; Alexander, 1930; Hutchinson and Dalziel, 1958). Van der Maesen (1985) revised the genus, but wrongly recognized as *P. lobata* var. *montana*, which was followed by many works both locally and worldwide, even in recent years (Sun *et al.*, 2005). A few years later, the right name for Kudzu was corrected as *P. montana* (Lour.) Merr. var. *lobata* (van der Maesen and Almeida, 1988), but this correction was published in a local journal given little attention by the world until another report in the USA ten years later (Ward, 1998). Today, it is still confused; for example, a recent industrial monograph of *Pueraria* (van der Maesen, 2002) treated Kudzu as *P. montana* var. *lobata* in the botanical section, but some other chapters in the same work used only *P. lobata* var. *montana*. More confusing is that the three varieties (var. *thomsonii*, var. *lobata* and *montana*) named by van der Maessen are very difficult to identify in the field (Li Zhenyu, PE, personal comm. of March 13, 2006). In fact, it was not accepted by recent work (Cullen, 1995; Cox, 1999; Cronk and Fuller, 2001). There are more names for Kudzu if one checks modern literatures. For example, it is represented by 182 *P. lobata*, 42 *P. thunbergiana*, 13 *P. montana*, 6 *P. thomsonii*, and 3 *P. hirsuta* under Kudzu in BIOSIS (1980–2005).

Kudzu is an important traditional medicine in East Asia (Gu *et al.*, 1996; Zhou *et al.*, 1995; Zhu *et al.*, 2002) as well as a kind of food in east, south and southeast Asia (Alexander, 1930). It was introduced in 1876 at the Centennial Exposition in Philadelphia as an ornamental plant from Japan (Bell and Wilson, 1989), developed for use as forage in the 1920s in Florida (Piper, 1920), and promoted in the 1930s by the United States Soil Conservation Service for erosion control (Alexander, 1930; van der Maesen, 1985; Bell and Wilson, 1989) as well as for various uses in other fields (Piper, 1920; Porterfield, 1938). Kudzu coverage was 3 millions hm^2 in the 1950s in USA, but due to its rapid growth, it smothered trees, houses and telephone poles, and further use as cover was discouraged. It was declared a weed in 1972 (van der Maesen, 1985), and in 1981 it was about to be declared a pest because it affected c. 22000 hm^2 of commercial forest in the state of Georgia (van der Maesen, 2002; Shores, 1997). As large impenetrable masses, growing over woody vegetation and able to completely engulf unwooded areas (Godfrey, 1988), Kudzu can completely envelop a tree, killing it by shutting out all light (Bell and Wilson, 1989); it is a serious and widespread invader of semi-natural or natural habitat (Cronk and Fuller, 2001) across the USA (McClain *et al.*, 2006). The lesson of Kudzu, deliberately introduced as a useful plant with encouragement in the beginning and resulting in being forbidden as a notorious invasive in the end is an excellent case in invasive biology (Lowney, 2002).

Kudzu is native to east, south to southeast Asia, including Bhutan (Grierson and Long, 1987), China (Wu, 1994; 1995) (except Heilongjiang, Nei Menggu and Qinghai), northeast India (Naithani, 1990; Kumar and Sane, 2003), northern Thailand (Lock and Heald, 1994), Malaysia (Lock and Ford, 2004), and the Pacific

Islands (Cronk and Fuller, 2001). However, due to longtime cultivation, the origin is uncertain, but thought to be around warm tropical Asia, including south China, northeast India, Burma and Thailand. From there, it was introduced into Africa (Hutchinson and Dalziel, 1958; Burrows, 1989), Asia, Europe (Kartmazova *et al.*, 1981; Yakovlev *et al.*, 1996), Oceania and America (D'Arcy, 1980; Bodner and Hymowitz, 2002). USA: AL, AR, CT, DC, DE, FL, GA, HI, IL, IN, KS, KY, LA, MA, MD, MO, MS, NC, NJ, NY, OH, OK, PA, SC, TN, TX, VA, WV.

20. *Reynoutria japonica* Houtt. Nat. Hist. **2** (8): 640, T. 51, f. 1, 1777; A. J. Li in Fl. Reip. Pop. Sin. **25** (1): 105—106, 1998, A. R. Li & C. W. Park in Fl. Chin. **5**: 319, 2003. Syn. *Polygonum cuspidatum* Sieb. & Zucc. in Abh. Math. -Phys. Cl. Konigl. Bayer. Akad. Wiss. **4** (3): 208. 1846; *Fallopia japonica* (Houtt.) Ronse Decraene in Bot. J. Linn. Soc. **98** (4): 369, 1988 (Polygonaceae).

Japanese Knotweed is native to China, Japan, Korea, far east Russia, widely cultivated and becoming a weed in other parts of the world. It was probably introduced to North America in the late 1800s as an ornamental plant and has also been used for erosion control and for landscape screening. It has spread through north and central Europe, Australia, New Zealand and most parts of USA: AK, AR, CA, CO, CT, DC, DE, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, NE, NH, NJ, NY, OH, OR, OK, PA, RI, SC, TN, UT, VA, VT, WA, WI, WV; and Canada: BC, MB, NB, NF, NS, ON, PE, QC.

There are three genera and two epithets for Japanese Knotweed in the nomenclatural field: the plant material brought to Britain from Japan was named *Reynoutria japonica* Houtt (1777),

and additional plant material was named *Polygonum cuspidatum* Sieb. & Zucc. (1846). Later it was discovered the two plants were identical (Makino, 1901; Beerling *et al.*, 1994). However, modern research work suggest this species should be put in the genus *Fallopia* (Ronse De Craene and Akeroyd, 1988; Bailey and Stace, 1992; Beerling *et al.*, 1994; 1995; Seiger, 1996; Cox, 1999), but has never been accepted by local floras in east Asia; it is also known as *Polygonum cuspidatum* in Europe and North America (Akeroyd, 1989; Sorrie, 2005).

21. *Sapium sebiferum* (L.) Roxb., Hort. Bengal. 69, 1814, Annot. in Fl. Ind. ed. 2, **3**: 693, 1832; Syn. *Triadica sebifera* (L.) Small, Florida Trees 59, 1913; *Croton sebiferum* L., Sp. Pl. 2: 1004, 1753 (Euphorbiaceae).

Chinese tallow tree, as a species of *Sapium* (s. l.), a genus with worldwide tropical distribution, centered mainly in the New World (Tseng, 1997), has been widely accepted in the world (Jubinsky, 1996; Cronk and Fuller, 2001; Rogers and Evan, 2002; Rogers, 2003; Wall and Darwin, 1999). Recently, however, it has been assigned to *Triadica* (Esser, 2002) again, a separate genus from *Sapium* but only distributed in Asia. It was introduced from China to South Carolina in the 1700s and then in significant numbers to the Gulf Coast in the early 1900s for seed oil under recommendation from the USDA from the 1920s to 1940s. It is also ornamental (still sold and planted), with waxy seeds traditionally used to make candles. It is native to the south of Yellow River in China, Japan, Vietnam and India, and is also cultivated in Europe and Africa and in USA: AL, AR, FL, GA, LA, MS, NC, SC, TX.

22. *Setaria glauca* (L.) Beauv. Ess. Agrose. **51**: 178, 1812; G. Y. Sheng in Fl. Reip. Pop. Sin. **10** (1): 357, 1990. Syn. *S. pumila* (Poir.) Roe-

mer & J. A. Schultes, Syst. Veget. **2**: 891, 1817; *Panicum glaucum* L., Sp. Pl. 3d. **1**: 56, 1753; *P. pumilum* Poir. in Encycl. Méth. Bot. **4**: 273, 1816 (Poaceae).

The Yellow Bristle Grass, from the Old World tropics and Eurasian temperates, was introduced into Australia and North America and is frequently used as *S. pumila* in Europe (Grass Team, Eur. Gard. Fl. **2**: 42, 1984) and North America (Rominger, 1962). It is distributed in USA: DC, DE, KY, LA, OR, WV; and Canada: ON, SK.

23. *Sparganium erectum* L., Pl. Sp. 971, 1753 (Sparganiaceae).

The Exotic Bur Reed, from Eurasia and North America (Cook and Nicolls, 1987), is a widespread aquatic plant, divided into *S. minimum* Wall. and *S. angustifolium* Michx. (Chen, 1992; Cook, 1980; Synnott, 1984) in Eurasia, and *S. eurycarpum* Engelm (Kaul, 2000; Crow and Hellquist, 2000) in North America, also distributed in USA: CA, CT, IA, ID, IL, IN, MA, MD, ME, MI, MN, NC, ND, NE, NH, NJ, NY, OH, OR, PA, SD, VA, VT, WA, WI, WV, WY; and Canada: AB, NB, NF, NS, ON, PE, QC, SK.

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